

REMARKS

The Examiner has rejected claims 1 through 10, 12 through 22, 24 through 36, 38 through 48, 50 and 51 under 35 U.S.C. §103(a). However, the Examiner has objected to claims 11, 23, 37 and 49 and indicated allowable subject matter. In view of the above amendments and the following remarks, the Applicants respectfully submit the Examiner to reconsider the pending objections and rejections.

The Rejections under 35 USC §103

The Examiner has rejected claims 1, 4 through 10, 12 through 14, 17 through 22, 24, 27, 30 through 36, 38 through 40 and 43 through 48 and 50 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al in view of Crane et al. The Examiner has rejected claims 2, 15, 16, 25, 26, 28, 41, 42 and 51 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. and Crane et al. further in view of Saito et al. The Examiner has rejected claims 3 and 29 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. and Saito et al. further in view of Murata et al.

According to the Examiner, the Hieda et al. reference discloses every element of independent claims 1, 12, 27 and 38 except for the use of “coefficients that spatially correspond to a specific set of color-component specific photo elements.” The Examiner points out that the Hieda et al. reference discloses the subject matter limitations with respect to FIUGRES 1 and 14. Although the Examiner concedes that the Hieda et al. reference fails to disclose, teach or suggest that the chroma and luminance values are generated and estimated for each pixel as claimed, he takes Office Notice for chroma and luminance data generation to obtain color image data without losing resolution.

As the Examiner has already conceded, the Hieda et al. reference fails to disclose, teach or suggest the use of “coefficients that spatially correspond to a specific set of

color-component specific photo elements” as explicitly recited in independent claims. For the lack of the disclosure, although the Examiner has now recited the Crane et al. reference, this reference still appears to lack the disclosure on the patentable features of the current invention. In view of the following remarks on the independent claims, the Applicants respectfully request the Examiner to consider the following distinctions over the above disclosures in the cited prior art reference.

Independent claims 1, 12, 27 and 38 explicitly recite the patentably distinct features over the cited prior art references. Independent method claim 1 now explicitly recites “d) adjusting the chroma values ... based upon coefficients that spatially correspond to a specific set of the color-component specific photo elements.” Similarly, independent system claim 12 explicitly recites “an interpolated chroma value generator ... for adjusting the chroma values based upon coefficients that spatially correspond to a specific set of the color-component specific filter elements.” Independent method claim 27 also explicitly recites “adjusting the chroma values ... based upon coefficients that spatially correspond to a specific set of the color-component specific filter elements.” Lastly, independent system claim 38 similarly claims “an interpolated chroma value generator ... for adjusting the chroma values based upon coefficients that spatially correspond to a specific set of the color-component specific photo elements.” Each of independent claims 1, 12, 27 and 38 explicitly requires “adjusting the chroma values” and “based upon coefficients that spatially correspond to a specific set of the color-component specific photo [or filter] elements.”

The above explicit recitations require that the “chroma” values are adjusted for each pixel according to “the predetermined spatial pattern of the color-component specific photo elements” or “the color-component specific filter elements.” As currently amended, the additional patentable feature requires “coefficients that spatially correspond to a specific set of the color-component specific filter [or photo] elements.” [emphasis added.]

In other words, the chroma values depend upon the specified spatial pattern of the color-component specific elements, and the intensity value is subsequently adjusted.

The above amendments to the independent claims are supported by the original disclosure beginning at the fifth line from the bottom of page 8 of the current application. Although the unit 130 is called “the chroma value generation unit,” as it is also called “chromaticity conversion unit,” it performs the adjustment of the chroma values according to the spatially corresponding coefficient.

In contrast, the Hieda et al. reference fails to disclose, teach or suggest the above patentable features. The Hieda et al. reference discloses several preferred embodiments for generating a corrected luminance signal by base-clipping at least one of two color difference signals (see Abstract). The two color difference signals, R-Y and B-Y signals are generated from color modulation components CR and CB and a luminance component Y from the digital single CCD output. A complementary color type single-plate CCD has a fixed spatial pattern. The Hieda et al. reference fails to disclose, teach or suggest the adjustment of the chroma value based upon the spatial pattern of the color-component specific photo elements based upon “coefficients that spatially correspond to a specific set of the color-component specific filter [or photo] elements” as required by the current invention.

In addition, the Crane et al. reference also fails to disclose, teach or suggest the above patentable features. The Crane et al. reference discloses the weighted coefficients for decode the missing pixel values and that the coefficients are corresponding to pixel locations throughout the M-plane. (lines 31 through 44, column 6). However, the coefficients are used to determine the missing pixel RGB values that are not “chroma values.” The Crane et al. reference limits the use of the spatially dependent coefficients to the RGB as illustrated in its disclosure in columns 8 through 11. There is no

suggestion of converting the RGB value to chromaticity values such as Cr and Cb according to the spatially dependent coefficients in the Crane et al. reference.

The Examiner has taken Office Notice for chroma and luminance data generation to obtain color image data without losing resolution. Although the Applicant understands the Examiner's position, it appears that there is a gap between the use of the spatially dependent coefficients for determining the missing pixel RGB values and the use of the spatially dependent coefficients for determining the chroma values of known RGB values. Thus, the Applicant respectfully submits to the Examiner that it would not have been obvious to one of ordinary skill in the art to provide the above patentable features based upon the cited references alone or in combination.

Dependent claims 4 through 10, 13 through 14, 17 through 22, 30 through 36, 39 through 40 and 43 through 48 ultimately depend from independent claims 1, 12, 27 or 38 and incorporate the above patentable features.

Furthermore, the Examiner has cited additional prior art for rejecting other claims. For the rejection of claims 2, 15, 16, 25, 26, 28, 41, 42 and 51 under 35 U.S.C. §103(a), the Examiner has alleged obviousness over Hieda et al. and the Crane et al. further in view of Saito et al. Similarly, the Examiner has rejected claims 3 and 29 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. and Saito et al. in view of Shimizu et al. Among these claims, claims 25, 26 and 51 are independent claims.

By the same token, other independent claims explicitly recite the similar patentable features. Independent claim 25 now explicitly recites "n) adjusting the chroma values ... based upon coefficients that spatially correspond to a specific set of the color-component specific filter elements." Similarly, independent claim 26 also explicitly recites "l) adjusting the chroma values ... based upon coefficients that spatially correspond to a specific set of the color-component specific photo elements." Lastly,

independent claim 51 explicitly recites “n) adjusting the chroma values ... based upon coefficients that spatially correspond to a specific set of the color-component specific filter elements.”

The combined disclosures still fail to disclose, teach or suggest the above patentable features. As already discussed above, the Hieda et al. reference fails to disclose, teach or suggest the adjustment of the chroma value based upon coefficients that spatially correspond to a specific set of the color-component specific photo or filter elements as required by the current invention. The Crane et al. reference limits the use of the spatially dependent coefficients to the RGB as illustrated in its disclosure in columns 8 through 11. There is no suggestion of converting the RGB value to chromaticity values such as Cr and Cb according to the spatially dependent coefficients in the Crane et al. reference. Neither the Saito et al. reference nor the Murata et al. reference alone or in combination disclose, teach or suggest the coefficients that spatially correspond to a specific set of the color-component specific photo or filter elements as required by the current invention.

Dependent claims 2, 3, 15, 16, 28, 29, 41, 42 and 50 ultimately depend from independent claims 1, 12, 27 or 38 and incorporate the above patentable features.

Therefore, it would not have been obvious to one of ordinary skill in the art to provide the above patentable features as explicitly recited in independent claims 1, 12, 25, 26, 27, 38 and 51 based upon the cited reference even in view of the Official Notice or the additional cited references alone or in combination.

Based upon the above reasons, the Applicants respectfully submit that the rejection of the above claims under 35 USC §103 should be withdrawn.

Conclusion

In view of the above amendments and the foregoing remarks, Applicants respectfully submit that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

Respectfully submitted,

/KEN I. YOSHIDA/

Date: June 16, 2008

Ken I. Yoshida, Esq.
Reg. No. 37,009

KNOBLE YOSHIDA & DUNLEAVY LLC
Customer No. 21302
Eight Penn Center, Suite 1350
1628 John F. Kennedy Blvd.
Philadelphia, PA 19103
Telephone: (215) 599-0600
Facsimile: (215) 599-0601